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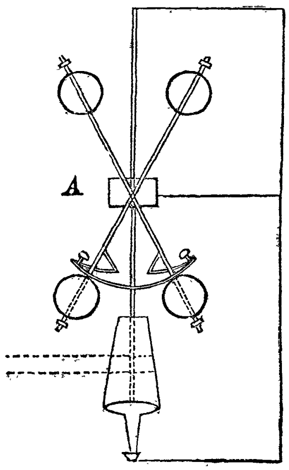
corrected by a transit of α^2 *Libræ*, taken during the occultation. No projection of *Mars* on the moon's disk was seen or other anomalous appearance. The definition was very fine, the configuration of the planet's surface being traceable to the last moment of eclipse by the moon's limb without any diminution of sharpness which would have been the case with an extensive lunar atmosphere."

Notes on Experiments relative to Lunar Photography and the Construction of Reflecting Specula. By the Earl of Rosse.

(*Extract of a Letter from the Earl of Rosse to the Astronomer Royal.*)

"As you mentioned to me in one of your letters that the Astronomical Society would be glad to hear from time to time what we are doing, there are two or three little matters I have been recently engaged in which may, perhaps, interest them.

"First, as to lunar photography. I have constructed a smooth motion-clock to carry the plate of glass, and its performance is satisfactory. The regulator is thus made: there are two levers with balls on the extremities, which exactly balance in *every position*; they are acted upon by two springs with screw adjustment, and on the expansion of the balls the regulating friction takes place at the ring A.* The object was to obtain a regulator independent of position. The direction of the motion of the glass plate is regulated by an adjustable slide, and we set the slide by trial, not by a table computed for the purpose. To set the slide, an eye-piece, with lines truly parallel to the slide, is inserted. By such means a pretty picture of the moon can be obtained, but at present I believe there is no known photographic process which is sufficiently sensitive to give details *in the least degree* approaching to the way in which they they are brought out by the eye. The application of such a smooth motion-clock to instruments *not equatoreally* mounted, may, perhaps, be important, as it affords great facilities for the use of the micrometer. With our 3-foot telescope, I have no doubt, excellent micrometric measures might be obtained; and with a somewhat enlarged small speculum, there would be ample time without hurry. For all objects but the moon, a table might be constructed with little trouble for setting the slide, which would save time.



"You recollect, no doubt, how greatly superior silver would be to speculum metal, if it could be as well and as easily polished as speculum metal. At the Ipswich meeting of the British Association

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* The crossed rods pass in the inside of a ring and rub the inner edges of the ring.

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I described a process which had been, to a certain extent, successful. It is difficult, however, and uncertain; and as a silver surface, is very perishable; it would scarcely be worth while to employ it, except under special circumstances.

" Another method which I have very recently tried is perfectly easy, and promises well. A plate of glass is coated with silver by precipitation from saccharate of silver. The silver film is then varnished with tincture of shell-lac, and when dry the temperature of the glass is gradually raised to the fusing point of shell-lac. Pieces of shell-lac are then laid upon it, and over them a piece of thick glass. A slight weight presses out the superfluous shell-lac, and the whole having gradually cooled, the silver film adheres permanently to the shell-lac, the glass upon which it had been originally precipitated being easily removed without injuring it. We have thus a silver surface apparently as true as the glass upon which it had been precipitated, and with a beautiful polish. The experiment is imperfect so far as this, that as yet merely common plate-glass has been tried, and not a true glass surface; and as I am about to set out for London, I shall have no opportunity for some time of completing these experiments.

" With the view of applying Mr. Lassell's levers to one of our 6-foot specula, should there be a reasonable prospect of improving its performance in that way, I have tried some experiments as to the practicability of drilling speculum metal. I find it can be drilled by a tubular drill of soft iron and emery, the core being from time to time removed by a pointed chisel and a very light hammer, by which it can be safely broken up gradually. A drill with diamonds set in a groove cuts it well also; and even a drill of perfectly hard steel, revolving slowly, cuts it well; so that there can be no serious difficulty in making the necessary perforations.

"*Castle, Parsonstown, April 20th,* 1854."

The Astronomer Royal having resigned the chair to Mr. Sheepshanks, proceeded to give a full explanation to the meeting of the various experiments alluded to in the foregoing communication from Lord Rosse, his remarks being rendered readily intelligible by means of models, which he had caused to be constructed for the purpose of illustration, and which had been obligingly forwarded by him to the Apartments of the Society. He pointed out the advantage which the system of supports for resisting edgewise pressure, now proposed by Lord Rosse, would have over that of Mr. Lassell, of which it was a modification, namely, that in the case of a reflector being mounted equatoreally, it would prevent the possibility of undue pressure against the *side* of the supporting-ring during the period when the telescope was being pointed to a celestial object; whereas in Mr. Lassell's system the supports come into their proper operation only after the position of the speculum has been rectified by rotating the tube in its cradle: this is a point of great importance in large specula, as it is found that they do not immediately recover their normal figure after distortion by pressure. At the same time, he

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took occasion to repeat that he still thought it preferable to avoid the rotation of the telescope tube in its cradle altogether, which the altazimuth mounting he had proposed would effect, and yet still provide for an equatoreal movement in the telescope, although he was aware that Mr. De la Rue was of opinion that the difficulties of mounting very large telescopes on an equatoreal stand might be overcome. The Astronomer Royal also pointed out, that if such a mounting were adopted, it would be desirable to so construct the system of supports for resisting the pressure perpendicular to the surface of the mirror, as to admit of the fulcra of the levers for resisting edgewise pressure being carried by them, in order that the ends of the levers might support the pressures in all directions equably, without constraining the mirror in any way, and without impeding its change of position by any sensible friction.

The Mediterranean: a Memoir Physical, Historical, and Nautical. By Rear-Admiral William Henry Smyth, K.S.F., D.C.L. &c. &c. 519 pp., 8vo. London: John W. Parker and Son. 1854.

In this volume Admiral Smyth has presented the results of many years of personal observation and research in the Mediterranean, bringing to the aid of his labours a vast amount of valuable scientific, literary, and antiquarian lore. As a contribution to Physical Geography, the merits of this work are obvious at first sight, and have not failed to be duly appreciated by the most competent authorities on the subject; but it is no less calculated to advance the objects of Nautical Astronomy, considered in its most comprehensive signification as a branch of mathematical and physical inquiry. The work is divided into five parts. Part I. contains a chorographical view of the shores of the Mediterranean, with especial reference to their produce and commerce. This may be considered as introductory to the scientific part of the work. Part II. treats of the currents, tides, and waters of the Mediterranean Sea. Part III. is on the winds, weather, and atmospherical phenomena of the regions of the Mediterranean. In Part IV. the author gives an interesting account of the early surveys of the Mediterranean, and concludes with an exposition of his own labours, having for their object the improvement of the existing state of knowledge on the subject. The valuable character of Admiral Smyth's Marine Surveys,—which extended over the interval comprised between the years 1810 and 1824,—was soon recognised by the Admiralty, who caused charts of them to be engraved and published, which have been long in general use. In the fifth and concluding part of his work, the author gives the determinations of the Maritime Positions upon which his charts were based. It contains

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* In connexion with these remarks, the reader may consult with advantage the substance of a lecture delivered by the Astronomer Royal on the large reflecting telescopes of the Earl of Rosse and Mr. Lassell, which is publishd in vol. ix. of the *Monthly Notices* (p. 110, *et seq.*).